

December 21, 1998

VPCD-98-15 (LDV/LDT/SV/ICI)

Dear Manufacturer:

Subject: Certification of 2000 and Later Model Year ORVR Vehicles

This letter provides manufacturers with updated reporting requirements for the certification of 2000 and later model year ORVR vehicles. The attached Enclosure I supersedes that of the March 21, 1997 manufacturer guidance letter (ref. VPCD-97-02). The requested information is needed pursuant to requirements in section 202(a)(4) and 206(a)(3) of the Clean Air Act, related to the safety of the ORVR emission control system. Until further notice, manufacturers must submit this information annually for each evaporative/refueling family.

ORVR Certification Reporting Requirements - Background

Section 202(a)(4) of the Clean Air Act, as amended, places the burden on the manufacturers to establish that emission control systems or elements of design used in 1979 and later new motor vehicles or motor vehicle engines do not "cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function." Section 206(a)(3) reads, in part: "A certificate of conformity may be issued only if the Administrator determines that the manufacturer (or in the case of a vehicle or engine for import, any person) has established to the satisfaction of the Administrator that any emission control device, system, or element of design installed on, or incorporated in, such vehicle or engine conforms to the applicable requirements of section 202(a)(4)."

Section 202(a)(6) of the 1990 Clean Air Act Amendments requires EPA to consult with the Secretary of Transportation regarding the safety of vehicle-based systems for the control of vehicle refueling emissions. During the course of the rulemaking, the National Highway Traffic Safety Administration (NHTSA) worked with EPA on the safety aspect of ORVR systems and provided assessments of the safety of ORVR systems. Ultimately, it was determined that it is possible to design safe ORVR systems, and in 1994, EPA published regulations requiring the phase-in of onboard refueling vapor recovery (ORVR) emission standards beginning in the 1998 model year, ref. 59 FR 16262, April 6, 1994. Because of the history of the rule regarding safety concerns and to help ensure

safe systems, the preamble to the regulation stated:

"During review of the certification application, EPA will study the design of the vehicle's ORVR system, its on-vehicle configuration and operation, and will consult directly with NHTSA on these applications."

ORVR Certification Information Reporting Requirements

Based on the above mentioned regulations and sections of the Clean Air Act, EPA intends to work with NHTSA to evaluate the safety of ORVR systems prior to issuing certificates of conformity. The enclosure to this letter contains information reporting requirements which EPA and NHTSA are proposing as the basis for the evaluation. Other information may also be required in some cases. The information should be sent directly to your certification team member, with a copy mailed to:

Mr. Scott B. York - Mail Code NSA-122
U.S. Department of Transportation
National Highway Traffic Safety Administration
Office of Defects Investigation
400 7th Street, S.W.
Washington, D.C. 20590
(202) 366-5209 (voice) (202) 366-1767 (fax)

EPA will rely on NHTSA to perform the initial safety review of manufacturer's ORVR designs. The review process should take approximately 2-4 weeks. Therefore, to ensure that the ORVR safety review does not adversely impact the manufacturer's certification time schedule, manufacturers should supply this information as soon as practicable after ORVR production plans have been finalized, i.e., no later than one or two months prior to certification.

ORVR Emission Testing - Conventional Nozzles

Currently, an SAE ORVR Task Force is investigating important nozzle characteristics which influence ORVR emissions. However, it is expected to be some time until the committee makes recommendations for nozzle shut-off performance and air entrainment rates. Manufacturers have requested (and EPA concurs with that request) to select representative nozzles that provide consistent performance characteristics and have a consequential market penetration. EPA prefers that manufacturers use a high sales nozzle (or equivalent) for ORVR testing. EPA would concur with the use of OPW model 11AP or OPW model 11BP (which is considered equivalent in emission performance to OPW model 11AP).

In the long term, EPA intends to work with the SAE committee to define appropriate nozzle performance characteristics, in hopes of standardizing the ORVR test procedure and improving in-use

emissions performance. EPA encourages automobile and nozzle manufacturers to participate on that committee.

ORVR Emission Testing - Flow Rate

The provisions of 40 CFR 86.154-98(e)(6) currently require that for ORVR testing, "The fuel shall be dispensed ata dispensing rate of 9.8 ± 0.3 gal/min (37.1 ± 1.1 liter/min). In testing conducted by the Administrator, a lower dispensing rate (no lower than 4.0 gal/min (15.1 liter/min) may be used. EPA is concerned about the ability of the ORVR vehicle designs to perform efficiently at lower flow rates, and intends to perform some confirmatory tests at lower flow rates. Initially, EPA confirmatory tests will be performed at the manufacturer's or other non-EPA facility.

If you have any questions about this letter, please contact Lynn Sohacki at (734) 214-4851, or Chien Sze at (734) 214-4385.

Sincerely,

(Original Signed by Eldert Bontekoe, Acting for)
Jane Armstrong, Director
Vehicle Programs and Compliance Division
Office of Mobile Sources

Enclosure

cc: S. York, NHTSA

Enclosure I

Information Required for Certification of Vehicles Equipped with Onboard Refueling Vapor Recovery (ORVR) Systems

If the manufacturer intends to certify an evaporative/refueling family that is substantially the same as a family submitted and reviewed by EPA and NHTSA previously, the manufacturer should only submit: 1) the date(s) of the previous submittal, 2) the referenced evaporative/refueling family name, vehicle model(s), and model year(s), 3) any minor changes made on the ORVR system subsequent to the previous submittal, and 4) the answers to Questions 1 and 4 below.

1. List the evaporative/refueling family name(s) and the respective ORVR vehicle model(s) to be certified.
2. Provide a description and schematic of the ORVR system (in English, no blueprints please). Include detailed information such as the physical and functional properties of the canister, the canister size, vapor line material, vapor line inner and outer diameter, various valves used, settings, operation, hose connector type, material and size of the fuel tank, filler neck, guide plate, and any other relevant information.
3. Describe any special refueling procedures for the subject vehicle system required or recommended at Stage II or non-Stage II refueling stations.
4. Furnish a list of any in-use problems or defects related to ORVR systems that required action by the manufacturer. This should include any service notifications, campaigns, instructions, or bulletins to dealers or field personnel and any changes in production procedures or components related to the ORVR system. If any safety-related defect campaigns have been conducted, furnish the U.S. Department of Transportation - Office of Defects Investigation number assigned to this recall.
5. If the ORVR system is not maintenance free for the useful life of the vehicle, furnish a schedule of required maintenance.
6. Provide the following: 1) an attestation that the ORVR system is properly designed with respect to electrostatic discharge phenomenon, e.g., SAE J1645, 2) description of both primary and secondary paths to ground in the subject system, include how contact is assured between the nozzle and the filler pipe inlet, 3) the tire resistivity and the total resistance from the nozzle to vehicle ground.
7. Provide: 1) a template or an outline of the failure mode and

effects analysis, which was used to evaluate all possible outcomes in the event of an ORVR component or system failure, either mechanical or functional, 2) an attestation that this failure mode and effects analysis was used by the manufacturer to evaluate the ORVR system of the vehicles being certified.

The template should include (but not be limited to) the effects of repeated attempts by the customer to top off the fuel tank, thermal expansion of the fuel, failure of the dispensing nozzle to shut off, and fuel tank over pressure/under pressure conditions.

(revised 12/18/98)